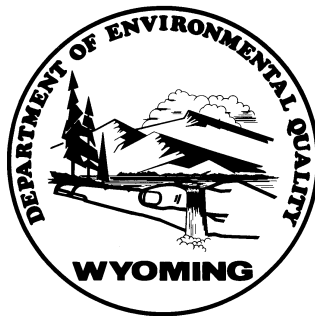


ORPHAN SITE
IDENTIFICATION, EVALUATION AND PRIORITIZATION PROCESS

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APPENDICES

- A. Orphan Site Evaluation Worksheet

1. Introduction

Wyoming's Voluntary Remediation Program (VRP) was created by the Wyoming Legislature in 2000 to create new opportunities, procedures, standards and incentives for voluntary remediation of contaminated properties. The owners and operators of many contaminated properties in Wyoming have volunteered to cleanup their properties under the VRP.

"Orphan sites" are defined in the Environmental Quality Act (§ 35-11-1701(b)) as:

1. Sites where the department determines that there is no viable party that is responsible for causing or contributing to the contamination present at the site; and
2. Sites where the department has issued a no further action letter, and where there is a subsequent discovery of contamination which was present at the site when the no further action letter was issued but:
 - (A) Was not known to the site owner or the department at the time the no further action letter was issued, provided that a comprehensive and complete site characterization was conducted by the owner;
 - (B) Is not the result of activities conducted on the site after the no further action letter was issued; and
 - (C) Does not constitute an imminent or substantial endangerment to human health or the environment which is being addressed by the holder of the no further action letter pursuant to a reopening of the no further action letter under § 35-11-1610(b).
3. Spill sites, where the department determines that the person responsible for the spill cannot be identified or where the department must take prompt action to prevent hazards to human health or the environment at a site where a responsible party fails to act promptly.

The purpose of this document is to define a process for identifying orphan sites and evaluating the risks posed by those sites. When applicable, the DEQ will use fact sheet guidance from the Voluntary Remediation Program (VRP). The results of this process can then be used to efficiently and responsibly prioritize the resources available to cleanup orphan sites in Wyoming.

2. Site Identification Process

There are a variety of ways in which potential orphan sites have been and can be identified, including but not limited to:

- Referral from other DEQ programs or state agencies
- Citizen complaints (including anonymous complaints)
- Evidence of contamination on adjacent properties
- Data submitted voluntarily by property owners or their representatives
- Research efforts by the DEQ or its contractors

Once a potential orphan site is identified, the DEQ will need to make a reasonable effort to determine if the site is likely to be an "orphan site". If the site appears to be an orphan site, the DEQ will use the process described in this document to characterize the nature of the risk

posed by the contamination and prioritize DEQ resources that are available to cleanup orphan sites.

3. Orphan Site Status

Sites will be evaluated through a separate evaluation process to determine “orphan site status”. Initially, DEQ must determine if there are person(s) responsible for the contamination at a site. These persons are often referred to as “potentially-responsible parties” or “PRPs”. This determination has legal considerations but includes whether the PRPs are known, continue to exist and whether they are financially viable.

DEQ will work in concert with the Wyoming Office of the Attorney General to determine orphan site status.

4. Site Evaluation Process

The site evaluation process described below is based on criteria that provide a general characterization of the risk posed to human health and the environment. The purpose of this process is to provide an efficient framework for evaluating the relative risk of orphan sites so that cleanup resources can be prioritized. The criteria and the associated scoring system are intended to provide a qualitative indication of risk based on information that should be readily available for most sites. This evaluation process is not intended to represent a formal quantitative risk assessment.

The criteria used by this evaluation process consider the nature of the contaminant, local environmental conditions, and potential exposures to humans and ecological receptors. In addition, this process evaluates a number of “other considerations” that may affect the DEQ’s prioritization of resources at sites with similar scores. The Orphan Site Evaluation Worksheet in Appendix A will be used to document the evaluation of potential risks at a given site.

Evaluation of the noted criteria requires some amount of site-specific and local data. The amount and quality of data will vary from site to site. In an effort to document the quality of the data used in this process, a “data confidence” factor will be assigned for each criterion considered, as described below:

Factor	Descriptor
--------	------------

- | | |
|---|--|
| 1 | <i>Best estimate</i> ... based on little or no information |
| 3 | <i>Educated or professional judgment</i> ... based on some knowledge or relevant information |
| 5 | <i>Reliable information</i> ... based on sampling, research or accepted knowledge |

The use of intermediate data confidence factors (i.e., 2 and 4) may be appropriate to properly characterize the quality of the data associated with a particular criterion. The “Comments” fields will be used to further document the nature, source and/or quality of data that are used as well as any assumptions that are made relative to a specific criterion.

4.1 Contaminant Criteria

The following criteria summarize what will be used to characterize the nature of the contaminant. The Orphan Site Evaluation Worksheet (Appendix A) provides a breakdown of the scoring to be used for each criterion. If more than one contaminant or type of contaminant is present, professional judgment will be used to decide if the sub-score will be based on the

contaminant that poses the greatest toxicity/hazard, or the contaminant that is present in the largest quantity or highest concentration.

Toxicity/hazard - This criterion generalizes the toxicity and hazard of known or suspected contaminants by placing the source material into one of three broad groups. If contaminant-specific toxicity/hazards are known, professional judgment will be used to select an appropriate sub-score.

Concentration in soil and groundwater - Site-specific data will be used to characterize the concentration of the contaminant(s). If no data are available and there is no evidence to suggest that free product is present (in containers, saturated soil, or non-aqueous phase liquid), it is recommended that a sub-score of "3" be used.

Hazardous vapors & particulates - Site-specific data will be used to characterize the concentration of vapors and/or particulates with respect to potential air quality impacts. If known vapor emitting volatiles or non-friable asbestos exist, a sub-score of "3" will be used. Proximity to structures will be considered in the human exposure criteria.

4.2 Environmental Criteria

The following criteria will be used to characterize the nature of the local environment.

Depth to groundwater - If site-specific data are not available, the Water Rights Database maintained by the State Engineer's Office (<http://seo.state.wy.us/wrdb/index.aspx>) or the Wyoming Geographic Information Science Center data base (<http://www.wygisc.uwyo.edu/clearinghouse/water.html>) will be used to estimate the depth to the shallowest groundwater in the vicinity of the site.

Proximity to Surface Water - USGS topographic maps (1:24:000) will be used to estimate the distance to perennial surface water features such as irrigation ditches, streams, rivers, ponds, lakes and reservoirs. The U.S. Fish & Wildlife Service's National Wetlands Inventory maps or Wetland Online Mapper (<http://wetlandfws.er.usgs.gov/wtlnds/launch.html>) will be used to identify potential wetlands. National Wetlands Inventory maps are available at local U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) offices, as well as Wyoming's Geographic Information Science Center (<http://www.wygisc.uwyo.edu/24k/nwi.html>).

4.3 Human Exposure Criteria

The following criteria will be used to characterize the potential for human exposure to the contaminants at the site.

Proximity to drinking water source – If site specific data are not available, the Water Rights Database maintained by the State Engineer's Office (<http://seo.state.wy.us/wrdb/index.aspx>) will be used to estimate the distance to drinking water wells in the vicinity of the site. Site reconnaissance may be necessary to more accurately estimate the distance to water supply wells within a given quarter-quarter section. If the site is located in close proximity to a city or town, local current GIS data may also be available and provide more accurate location information.

Land use - The knowledge of local city or county personnel who work in the area may be

adequate to properly characterize local land use. Site reconnaissance or recent aerial photography may also be useful. Grayscale aerial photos (circa 1994) and color infrared aerial photos (circa 2004) can be accessed from Wyoming's Geographic Information Science Center (<http://partners.wygisc.uwyo.edu/website/dataserver/viewer.htm>).

4.4 Ecological Receptor Criterion

The following criterion will be used to characterize the potential for ecological exposures to the contaminants at the site.

Important/sensitive habitat or threatened or endangered species – Important/sensitive habitat will be determined based on the definitions provided in the Voluntary Remediation Program Fact Sheet #14. "Important habitat" may include fish-bearing water bodies (possibly including ditches, streams, rivers, ponds, lakes, or reservoirs) and habitats that are uncommon (such as pools/wetlands in arid basins) or that many fish or wildlife are known to use. "Sensitive habitat" may include local, state, or federal natural areas, refuges, reserves, or preserves, wetlands, areas where habitat fish or wildlife restoration will be conducted, other lands designated for wildlife habitat and/or use, or unique or rare habitats such as thermal hot springs, or those habitats that contain unique or rare plants, fish or wildlife. Threatened or endangered species may be identified by contacting local Wyoming Game and Fish Department or U.S. Fish and Wildlife Service offices, as well as the Wyoming Natural Diversity Database (307-766-3023 or <http://uwadmnweb.uwyo.edu/wyndd/>).

4.5 Other Considerations

In addition to considering the risks posed by orphan sites, it may also be prudent to consider other factors in the process of deciding how to use DEQ resources most effectively and responsibly. The Orphan Site Evaluation Worksheet in Appendix A identifies "other considerations" that may be relevant to particular orphan sites, as described below.

Additional resources - Other sources of funding or in-kind services may be available to facilitate the cleanup of orphan sites. In these situations, it may be appropriate to accelerate the schedule for a particular orphan site to take advantage of additional resources that may not otherwise be available.

Site access - In the event that there are obstacles or questions regarding legal access to an orphan site, it may be appropriate, all other evaluation criteria being equal, to shift available resources to another orphan site while the outstanding access issues are resolved.

Perceived Risk – Some sites elicit a public perception of risk that may be due to incomplete, inconclusive or incorrect information. In such circumstances, it may be prudent to utilize available resources to confirm or resolve public perceptions of risk.

5. Prioritization of Orphan Sites

The list of orphan sites, their associated scores and "other considerations" will be used to develop a prioritization list of orphan sites. Orphan sites with the highest overall scores and the highest data confidence factors will likely be considered first for cleanup activities. However, DEQ will reconsider the prioritization list upon receipt of additional data, information or a change in site conditions.

If a site has a high overall score but a low data confidence factor, consideration will be given to utilizing available resources to perform a Phase I or II site assessment.

“Other considerations” as defined on the Orphan Site Evaluation Worksheets will be considered when sites have similar scores and available resources are limited. These “other considerations” may be useful in determining how resources can be used most effectively in the current planning and budget period.

It is possible that once a site is initially evaluated, new or more accurate data or information may become available. Some of these data or this information may come from newly discovered historical documents, changes in local land use, investigations of adjacent properties, or DEQ efforts to investigate and cleanup orphan sites. It is also possible that “other considerations” for particular sites may change from year to year. As new or more accurate data become available, they will be used to reconsider the total score and data confidence factors associated with the site evaluation process.

Appendix A

Orphan Site Evaluation Worksheet